Chapter 1
Purpose And Need

Dedication of the Going-to-the-Sun Road at Logan Pass, July 15, 1933

Photo by R.E. Marble, GNPA #8137

"…we may confidently declare that there is no highway which will give the sightseer, the lover of grandeur of the Creator's handiwork, more thrills, more genuine satisfaction deep down in his being, than will a trip over this road."

Senator Burton K. Wheeler of Montana at The Dedication of the Going-to-the Sun Highway, July 15, 1933

INTRODUCTION

The National Park Service (NPS) is considering the rehabilitation of the 50-mile (80-kilometer) Going-to-the-Sun Road in Glacier National Park (GNP or Park). The purpose of this project is to protect and preserve the Road's status as a National Historic Landmark. Rehabilitation is needed because of the deterioration of the 70-year old Going-to-the-Sun Road (Road) and associated resources. If not rehabilitated, the Road will continue to deteriorate, resulting in further damage to natural, historic, and cultural resources and potential safety issues for Park visitors.

Although previous Road repairs have been conducted, inadequate funding and staff has not allowed repairs to keep up with the rate of Road deterioration. The difficulty in implementing needed repairs is that the majority of rehabilitation can only be conducted in the late spring, summer, and early fall, which is also the time that most visitors experience the Road. The challenge is to continue private vehicle use while ensuring that needed Road repairs are made, and to reduce the potential economic impact during rehabilitation on local and regional businesses and communities that rely on summer tourism.

This draft Environmental Impact Statement (EIS) for the Going-to-the-Sun Road documents the analysis of the potential environmental consequences of the alternatives for rehabilitation of the Road. Chapter 1 provides supporting background material,

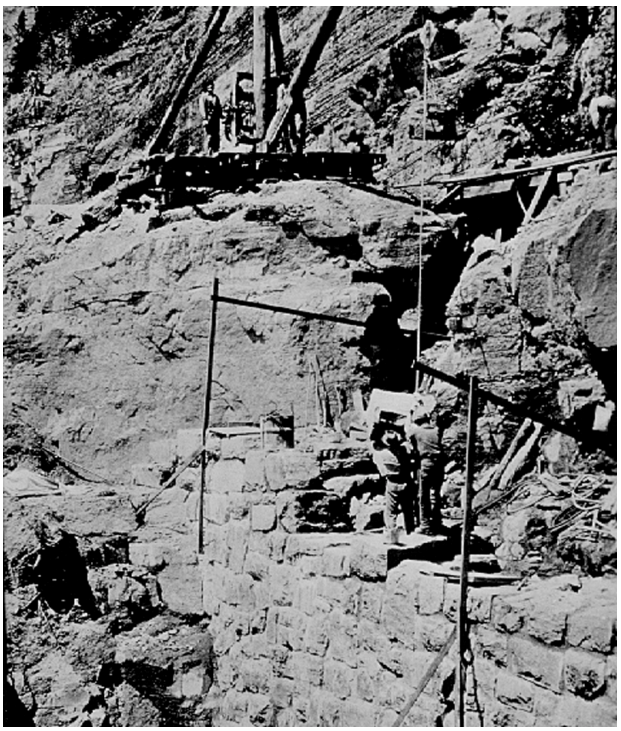
information on the purpose and need for the proposed action, scoping and public involvement, key issues, impact topics considered in the EIS and those dismissed from further consideration, relationship to other planning projects, and the decision process. Four alternatives were developed for analysis, including the preferred alternative and a no action alternative. These alternatives are discussed in Chapter 2. Baseline information on socioeconomic, cultural, and natural resources in the project area is provided in Chapter 3. An analysis of the potential environmental consequences for each of the alternatives is included in Chapter 4. Chapters 5, 6, and 7 provide information on compliance with federal and state regulations, consultation and coordination, and references.

BACKGROUND

Road Construction

GNP was established on May 11, 1910. At that time, there were few formal roads or trails into the Park. Tourists would often arrive by train at Belton Station in West Glacier and take a stagecoach to Lake McDonald or multi-day horseback trips into the Park's interior. Boat rides on Lake McDonald provided access to Lake McDonald Lodge, which was completed in 1914. The lack of access into the Park spurred efforts to begin planning for a road across the Continental Divide linking the east and west sides of the Park. Construction of the Road was a monumental undertaking between 1922 and 1932. The Road was the first product of the 1926 NPS/Bureau of Public Roads (now Federal Highway Administration [FHWA]) interagency agreement prepared to facilitate cooperative construction of Park roads. The Road was opened to travel over Logan Pass from both directions in October 1932. Since that time, the Road and the attractions along the route have proven extremely popular and have drawn people to the Park from all over the world.

During the first full year of operation in 1933, the NPS estimated that 40,000 cars traveled the road that year. Currently, about 475,000 vehicles annually travel the Road. Traffic volume, avalanches, harsh climatic conditions, and inadequate repairs and maintenance of the Road due to limited funding and trained staff have led to the deteriorating condition of this historic roadway. During the 1930s, several realignments were constructed and improvements to earlier constructed segments added retaining walls and guardwalls, stabilized slopes, widened narrow sections, and improved drainage. Paving of portions of the Road began in 1938. Roadwork was interrupted by World War II and it was not until the 1950s that substantial reconstruction and improvements to the Road were resumed. From 1957 to the early 1980s, reconstruction and rehabilitation work on the Road was infrequent and limited in scope. In part due to funding limitations,



Original road construction

efforts were concentrated on routine maintenance and repair of damaged areas.

Prior to 1982, funding for GNP road repairs was minimal and came entirely from the Park's annual operating budget. The passage of the Surface Transportation Assistance Act in 1982, which included funding for federal road reconstruction projects, allowed the Park and FHWA to establish a road improvement program. Between 1984 and 2001, 13 road rehabilitation projects have been funded in the Park. About $28.5 million was spent to reconstruct about 24 miles of the Road. The completed sections are mostly at lower elevations, with less than 1 mile of the high-mountain sections of the Road rehabilitated. Since 2000, the focus of construction has been on emergency stabilization of the highest priority retaining walls. Eleven high priority work sites requiring wall repair were evaluated in an Environmental Assessment (NPS 1999a) and work on these sites was initiated in 2000. This work is currently in progress, with $3 million dollars of retaining wall rehabilitation work scheduled for 2004 and an additional $2.25 million scheduled for work in 2005. Funding for these projects is subject to the reauthorization of TEA-21 in 2004.

Historic Significance

The Going-to-the-Sun Road is a spectacular scenic road that spans the Continental Divide and links the east and west sides of the 1.1-million acre (408,700-hectare) Glacier National Park (Figure 1). The Road is considered an engineering marvel because of the remarkable construction effort that was needed to carve the Road into the steep mountainous terrain. Because of the Road's unique character and historic significance, it was placed in the National Register of Historic Places (NRHP) in 1983. In recognition of the Road's outstanding example of careful design and engineering talent, it was declared a National Civil Engineering Landmark in 1985. It then received the highest recognition as a National Historic Landmark in 1997.

The recognized historic significance of the Going-to-the-Sun Road considers the Road both as a single, linear entity and as a collection of individual structural and engineering resources, many of which are significant in their own right. These individual features include major, highly visible elements such as bridges and tunnels, as well as smaller scale components such as culverts, retaining walls, and segments of stone guardwall.

Various documentation projects for the Road conducted for the NRHP, Historic American Engineering Record (HAER), and National Historic Landmark (NHL) all provide slightly differing lists of the major, historically significant individual features along the Road. Table 1 lists the individual contributing features specified in each of these three documents.

For additional information, see the 2001 *Cultural Landscape Inventory* (RTI 2001) and the 2002 *Cultural Landscape Report* (RTI 2002).

Visitor Use and Experience

People travel from throughout the United States and the world to experience the majesty and beauty of Glacier National Park. The Park's unique treasures and natural and cultural heritage have earned the Park designation as the world's first International Peace Park, as well as a Biosphere Reserve and a World Heritage Site. One spectacular feature of the Park is the Going-to-the-Sun Road.

The Road is the Park's primary automotive route providing the principal access to trailheads, campgrounds, scenic vistas, the Logan Pass Visitor Center, Lake McDonald Lodge, shoreline access to

Table 1. Contributing features specifically identified in prior historic significance documentation, Going-to-the-Sun Road.

Feature	NRHP[1]	HAER[2]	NHL[2]
Going-to-the Sun Road	X	X	X
Belton Bridge		X	
Sprague Creek Culvert		X	X
Snyder Creek Bridge	X	X	X
Horse Trail Underpass (west side)		X	X
Avalanche Creek Bridge	X	X	X
Logan Creek Bridge	X	X	X
West Side Tunnel	X	X	X
Granite Creek Culvert		X	X
Haystack Creek Culvert[4]	X	X	X
Triple Arches	X	X	X
East Side Tunnel	X	X	X
Siyeh Creek Culvert		X	X
Baring Creek Bridge[5]	X	X	X
Golden Stairs Retaining Wall		X	
St. Mary River Bridge	X	X	X
Divide Creek Bridge	X	X	X
"Typical Drainage Culvert"		X	
"No Name) Creek Culvert"		X	

[1]National Register of Historic Places listing (1983)
[2]Historic American Engineering Record documentation (1990)
[3]National Historic Landmark designation (1997)
[4]Listed as "Haystack Butte/Amphitheater Bridge" in NRHP
[5]Listred as "Sun Rift Gorge Bridge" in NRHP

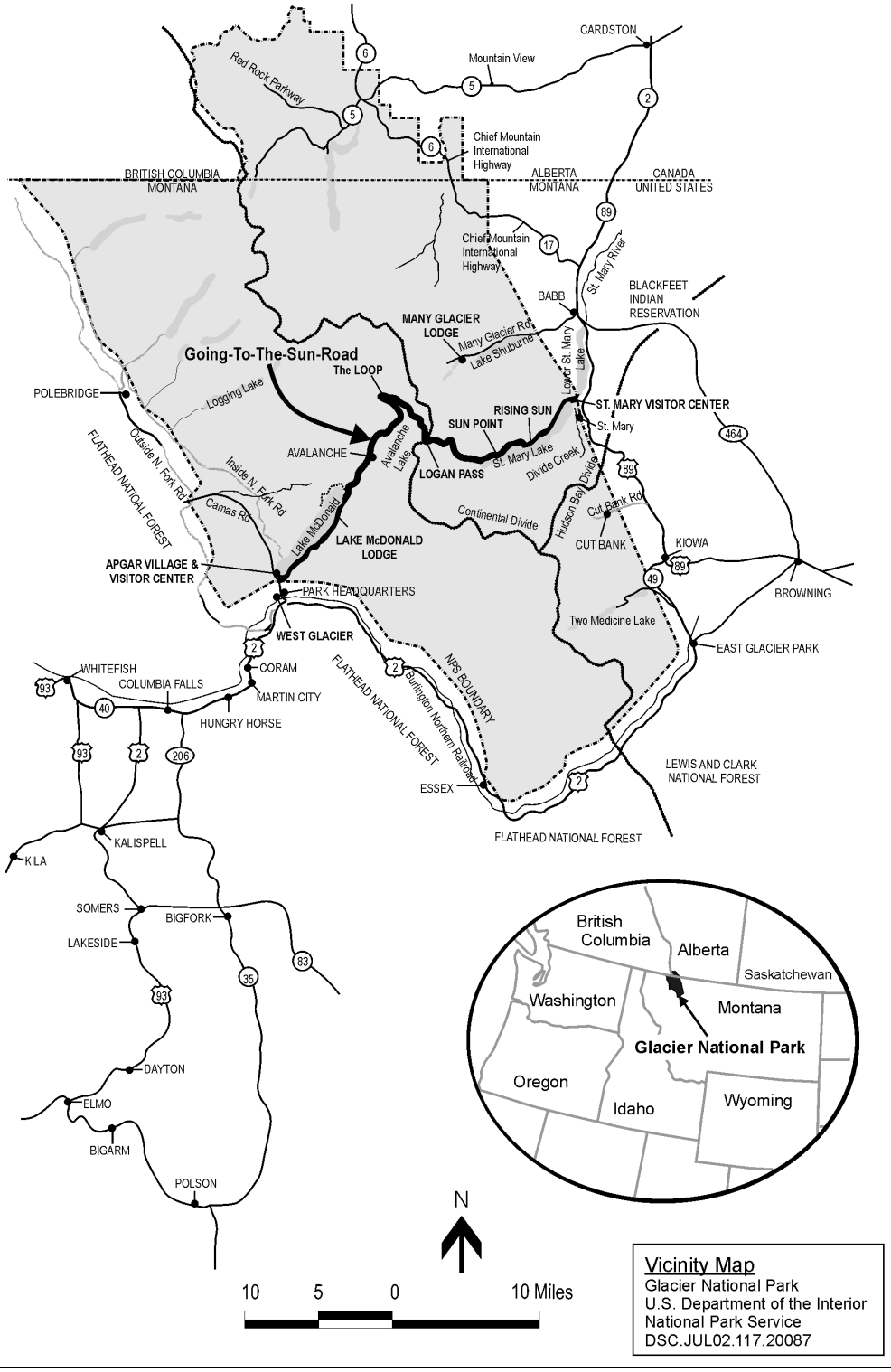
Lake McDonald and St. Mary Lake, and other Park historic and natural features. The Road itself is a major attraction as people enjoy the historic structures, design, and driving experiences associated with it.

Annual visitation to GNP has grown from 53,000 visitors in 1932 to about 1.7 million visitors in 2001, most of who spend some time on the Road. Maintaining the quality of Park resources and the visitor experience is a key component of Park management. The NPS proposes to incorporate needed improvements to visitor facilities such as pullouts, parking, toilets, visitor orientation, and other amenities into the Road rehabilitation effort.

Previous Studies

A number of studies evaluating the condition and needs associated with the Road have been conducted over the last 18 years. In 1984, the FHWA conducted a *Road Rehabilitation Planning Study* to identify problem locations and needed repairs. Subsequent FHWA *Road Inventory Program* investigations in 1998 and 2002 evaluated the condition of the Road and structural features (FHWA 1998a, 2002). A *Traffic Safety Study* conducted in 1994 (Robert Peccia and Associates 1994) and a *Vehicle Movement and Traffic Study* conducted in 1997 (Robert Peccia and Associates 1997) documented safety and traffic concerns. In 1998, FHWA completed an assessment of stone retaining walls along the Going-to-the-Sun Road (FHWA 1998b). This study identified structural problems at 76 of the 126 walls inventoried. All of these studies have indicated the need to implement repairs to the Going-to-the-Sun Road to prevent further deterioration, improve safety, and protect Park resources.

Figure 1. Vicinity Map.



Management Direction

In 1999, a *General Management Plan* (GMP) for the Park was completed (NPS 1999b). The GMP identified the need to rehabilitate the Road to preserve its historic character and significance, protect natural and scenic resources, and provide a continual high quality visitor experience. The NPS determined that rehabilitation of the Road was necessary to maintain the goals and objectives for management of the Park.

The GMP did not determine how to accomplish Road rehabilitation, but recommended that the work should be conducted in a manner that completes repairs prior to road failure at a reasonable cost, and minimizes impacts on natural resources, visitors, and the local economy. The GMP is discussed later in the *Relationship to Other Planning Projects* section.

Recent Studies

In 1999, federal legislation was passed to reallocate $1 million of transportation funds to conduct engineering studies, socioeconomic analysis, and to establish a Citizens Advisory Committee (CAC) to advise the NPS on rehabilitation of the Road. The CAC was authorized under the Omnibus Consolidated and Emergency Supplemental Appropriations Act, 1999, Public Law 105-277.

Repair work on Triple arches

A series of studies were initiated in 2000 to assist the CAC and the NPS in the analysis and development of alternatives for the Going-to-the-Sun Road rehabilitation. One of these studies was an *Engineering Study* (WIS 2001a) with the objectives of:

- Verifying the condition of the Road
- Developing feasible alternatives, costs, and schedules for Road rehabilitation
- Recommending operations and maintenance measures to protect the capital investment in the Road

A *Socioeconomic Study* (WIS 2001b) was prepared to evaluate the potential impacts to visitors and the economy from rehabilitation of the Road. Objectives for the study included:

- Collecting baseline information about businesses in the GNP area
- Identifying visitor development actions to encourage visitation to the Park and reduce potential impacts during Road rehabilitation
- Conducting a survey of visitors to evaluate travel characteristics and in-park visitor activities
- Conducting a survey of potential visitors to evaluate how possible travel limitations during road rehabilitation may affect tourism
- Conducting a survey of local businesses
- Forecasting future visitation to GNP to help assess socioeconomic impacts
- Estimating direct economic impacts from the alternatives identified in the *Engineering Study*

A *Transportation and Visitor Use Study* (WIS 2001c) was prepared to help develop and analyze options to improve the quality of the visitor experience along the Road during and after rehabilitation. Elements of the study included:

- Analysis of the existing transportation and visitor use facilities along the Road
- Development of visitor use improvements including programs and facilities
- Assessment of transportation improvement options including transit service
- Identification of options for short-term improvements during Road rehabilitation and long-term improvements following completion of roadwork

Cultural resource investigations also were conducted to provide a detailed assessment of the historic features of the Road. The cultural resource investigations were conducted in two phases. The first phase is documented in the *Cultural Landscape Inventory* (RTI 2001), which will be updated in 2002. The inventory resulted in the identification and recordation of over 1,300 individual structural features associated with the Road. Culverts and other small drainage structures were by far the most common historic features observed during the inventory; a total of 453 such structures were located and mapped. Other common historic feature types included guardwall segments, turnouts, and retaining walls. Additional inventoried resources included bridges, buildings, fences, curbs, gates, trailheads, and road intersections. The inventory also provides NRHP eligibility information for those resources large enough to warrant a determination.

The second phase is documented in a *Cultural Landscape Report*, which evaluated cultural resources and recommended management strategies for the NPS to consider in protecting them during rehabilitation (RTI 2002).

The findings of the *Engineering Study*, *Socioeconomic Study*, and *Transportation and Visitor Use Study* were used by the CAC to develop advice to the NPS on alternatives to include in this EIS as described in Chapter 2. The *Cultural Landscape Report* provided recommendations for the *Engineering Study* and supplemental information to the CAC for use in developing their advice.

Recommendations for Rehabilitation

As previously described, studies conducted by the FHWA and others have documented the deficiencies in the condition of the Road. An extensive conditions assessment was conducted in 2000 and 2001 as part of the *Engineering Study*. It identified the work necessary to repair the Road and associated structures (WIS 2001a). The results of the recent conditions assessment support previous FHWA and other studies indicating the immediate need to rehabilitate the Going-to-the-Sun Road before further deterioration or catastrophic failures occur.

In February 2000, the CAC began discussion on the condition of the Road and identification of opportunities and issues regarding potential cultural, environmental, visitor use, and economic impacts from Road rehabilitation. Following almost 2 years of public discussion, comment, and review of the *Engineering Study* and other reports, the CAC also recommended that the Road be rehabilitated (NPS 2001a).

PURPOSE AND OBJECTIVES

The purpose of this project is to rehabilitate the Going-to-the-Sun Road between West Glacier and St. Mary, Montana to protect and preserve a National Historic Landmark and premier visitor experience in Glacier National Park (Figure 2). Additionally, the purpose is to prevent further loss or

damage to natural and cultural resources and to protect visitors and employees.

Management direction for the Road is provided by the GMP developed for the Park. GMP management goals for the Road include continuing to provide Park visitors with an opportunity to experience the scenic majesty and historic character of the Park through a wide range of visitor activities, services and facilities, with an emphasis on the cultural significance, scenic values, and traditional uses. Rehabilitation is to be completed in a manner that preserves the historic character, significance and width of the Road, while minimizing impacts on visitors, the local economy, and natural resources at a reasonable cost in accordance with the decision reached in the GMP.

Objectives for Road rehabilitation include:

- Preserving its historic character, fabric, width, and significance
- Rehabilitating the Road to a quality condition in a cost-effective manner
- Minimizing effects on natural, cultural, and scenic resources
- Maintaining a world-class visitor experience
- Providing for visitor and employee safety
- Minimizing impacts to the local and regional economies

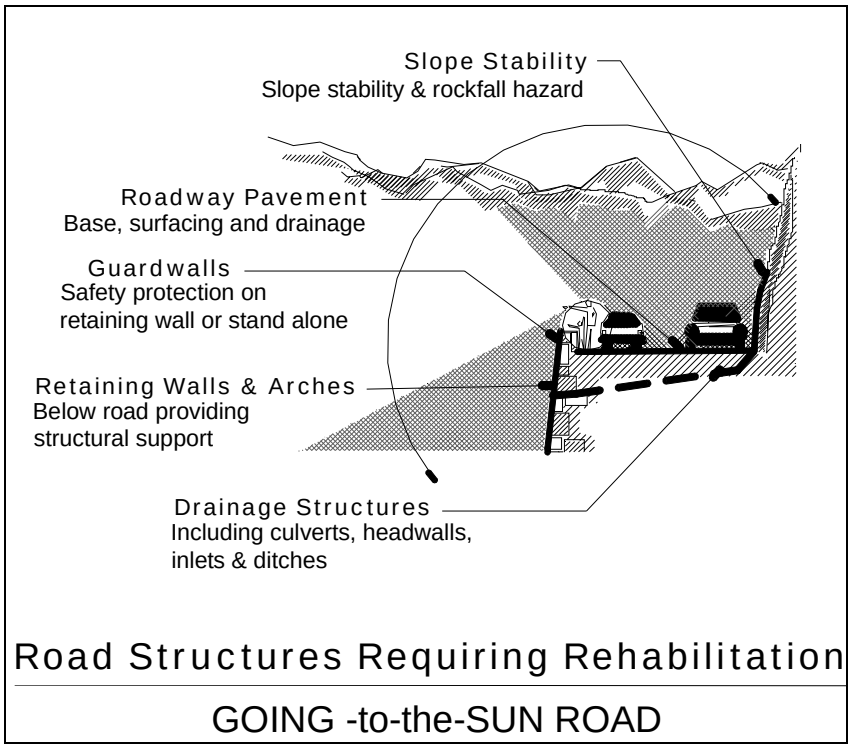
NEED FOR THE PROJECT

The proposed rehabilitation of the Road is under consideration because of the need to address deficiencies in the Road's condition and visitor use facilities adjacent to the Road. Immediate attention to Road rehabilitation is needed to prevent further deterioration and damage to historic features, environmental resources, and scenic quality. Various rehabilitation projects on the Road have occurred since its original construction in the 1920s and 1930s; however, the majority of these improvements are located at lower elevations. Due to funding limitations, very little work has been conducted on the "steep narrow portions" of the Road at higher elevations. These upper sections have deteriorated badly along with the associated historic road features like walls and stone culverts.

Rehabilitation of the Going-to-the-Sun Road is of vital concern to the NPS, local and regional businesses and communities, and the public. The Road is a major tourist attraction for northwest Montana and Alberta, Canada, and provides access to scenic, natural, and historic resources. Rehabilitation is needed for the Park to continue providing a world-class visitor experience and to protect this National Historic Landmark. To meet the objectives and management goals for the Road, proposed rehabilitation work needs to be initiated soon to prevent further deterioration, protect resources, and minimize cost.

Needs Associated with the Road's Structure

The following overview of Road conditions highlights the existing structural and maintenance deficiencies of the Road. The *Engineering Study* (WIS 2001a) prioritized rehabilitation needs for each of the five Road segments and determined that the Alpine segment of the Road is in most critical need of repairs (Figure 2). The West Tunnel and Baring Creek segments of the Road also have substantial repair requirements. Lower elevation Road segments along Lake McDonald and St. Mary have lower priority rehabilitation needs.



lack of drainage features along the Road, particularly in the vicinity of guardwalls and retaining walls, cannot adequately convey the volume of runoff water. This results in water flowing over the roadway surface and infiltrating into the subbase under the pavement. Frequent freezing and thawing of the subsurface moisture results in frost heaving and damage to the Road's pavement and structures.

Significant drainage deficiencies are present between The Loop and Siyeh Bend (Figure 2). Inadequate cross drains, plugged culverts, lack of drop inlets and drainage ditches, and other drainage deficiencies have contributed to deterioration of this section of the Road.

Drainage

Inadequate drainage from the road surface and subsurface, compounded by malfunctioning drainage structures have contributed to the deterioration of the roadway pavement, road base, retaining walls, guardwalls, and drainage structures and, if not corrected, further significant deterioration would occur. Most of the runoff from melting snow occurs over a short time period in the spring. Narrow and shallow ditches, undersized culverts, and a general lack of drainage features along the Road, particularly in the vicinity of guardwalls and retaining walls, cannot adequately convey the volume of runoff water. This results in water flowing over the roadway surface and infiltrating into the subbase under the pavement. Frequent freezing and thawing of the subsurface moisture results in frost heaving and damage to the Road's pavement and structures.

Numerous culverts and smaller bridges along the Road are clogged with debris, have scoured channel bottoms, and have deteriorated mortar in the stone walls. In many locations, the roadway subgrade is saturated and weakened by water intrusion, which contributes to slump failures and slope damage. Stone guardwalls and retaining walls have shifted

Sediment deposition at Divide Creek Bridge

Inadequate roadway drainage

and weakened or failed in some locations due to water intrusion and slumping. In several locations, such as above Crystal Point Arch, drainage flow is trapped against the retaining walls because there is no outlet. This water enters cracks in the asphalt above the wall, undermining the wall. It also results in running or standing water on the roadway, which is a safety hazard for motorists. Erosion of slopes below the Road is occurring from unprotected culvert outlets.

Several drainages that cross the Road, including Divide Creek, carry high amounts of rock and gravel (Figure 2). The deposition of this material at the bridges restricts flow during large runoff events, which can adversely affect the integrity of the bridge structures and the adjacent roadway. Divide Creek is of particular concern because of the potential for flooding. Previous floods have frequently resulted in impacts to the Road, the historic Divide Creek Bridge, Park residential and maintenance facilities, the St. Mary Visitor Center, and other adjacent lands near the town of St. Mary. The streambed of Divide Creek is at about the same elevation as the floodplain and, as a result, any deposition of material in the streambed encourages the stream to change course into a lower portion of the floodplain and reduces the capacity for flood flow under the bridge (Smillie and Ellerbroek 1991).

Slope Stability and Rockfall Hazard

Slope stability problems include slump failures, slope undercutting, unstable slopes, rockfall hazards, and avalanche chutes. Slump failures are present in several locations where weakened fill sections are slowly moving and impacting the roadway pavement. Ongoing fill slope erosion between the Road and Lake McDonald (MP 6.3 and 9.1) and an active slide has resulted in subsidence or sinking of the pavement (Figure 2). Slope undercutting of the roadway due to erosion occurs in a number of locations on steep slopes and contributes to the weakening or failure of guardwalls and retaining wall foundations and to a loss in pavement and roadway width. Portions of the Road near the West Tunnel are subject to shallow movement of the foundation material supporting the Road. Near the East Tunnel, substantial rockfall creates a safety hazard that has damaged retaining walls.

In several locations steep, unstable cut slopes above the Road are actively eroding. This leads to further erosion of the cut slope, loss of soil material, and the loosening of large rocks that roll down the slope onto the roadway. Rockfall hazards are a safety concern throughout much of the steep high elevation portions of the Road between The Loop and Golden Stairs Point (Figure 2). Through natural freeze/thaw processes and erosion, loose rocks periodically break free and land on the roadway. Approximately 70 avalanche chutes are present throughout the high elevation portions of the Road and although not readily controllable, they continue to damage Road guardwalls and other appurtenances. Debris flows along gullies and drainages contribute to Road deterioration from erosion of the roadbase or deposition of materials on the Road.

Eroding cut slope

GLACIER NATIONAL PARK

The Loop
MP 25.0
Alder Creek
Westside Tunnel
Haystack Creek
Packers Roost
Big Bend
Logan Pit
Logan Creek
MP 20.0
MP 30.0
McDonald Creek
Red Rock Point
Triple Arches
Lunch Creek
Siyeh Bend
Siyeh Creek
Eastside Tunnel
Oberlin Bend
MP 35.0
Logan Pass and Visitor Center
Reynolds Creek
Sunrift Gorge
Baring Creek
Rose Creek
Rising Sun Campground and Lodge
MP 45.0
St. Mary Lake
Avalanche Picnic Area
Avalanche Campground
MP 15.0
Avalanche Creek
Jackson Glacier Overlook
MP 40.0
Sun Point
Wild Goose Island Overlook
Golden Stairs Point
St. Mary Visitor Center
St. Mary Campground
MP 50.0
St. Mary
Divide Creek
Blackfoot Highway
89
Lake McDonald Lodge
Moose Country
St. Mary River
Snyder Creek
MP 10.0
Sprague Creek Campground
Sprague Creek
Lake McDonald
Camas Road
MP 5.0
Apgar Village
West Entrance
Park Headquarters
West Glacier
Middle Fork Flathead River
2

Figure 2

Glacier National Park Going-to-the-Sun Road Overview Map

- Going to the Sun Road Corridor
- National Park boundary
- Lakes
- Streams
- Highways and other local roads
- Going-to-the-Sun Road segments
  - Lake McDonald
  - West Tunnel
  - Alpine
  - Baring Creek
  - St. Mary
- Campground
- Picnic area
- Lodging
- Points of interest
- Visitor center
- Town
- Milepost marker

Overview Map
Glacier National Park
U.S. Department of the Interior
National Park Service
DSC.JUL02.227.20088

ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218
(303) 830-1188
Fax: 830-1199

N

Scale: 1 inch = 12,500 feet

0 1 2 3 Miles

0 2 4 Kilometers

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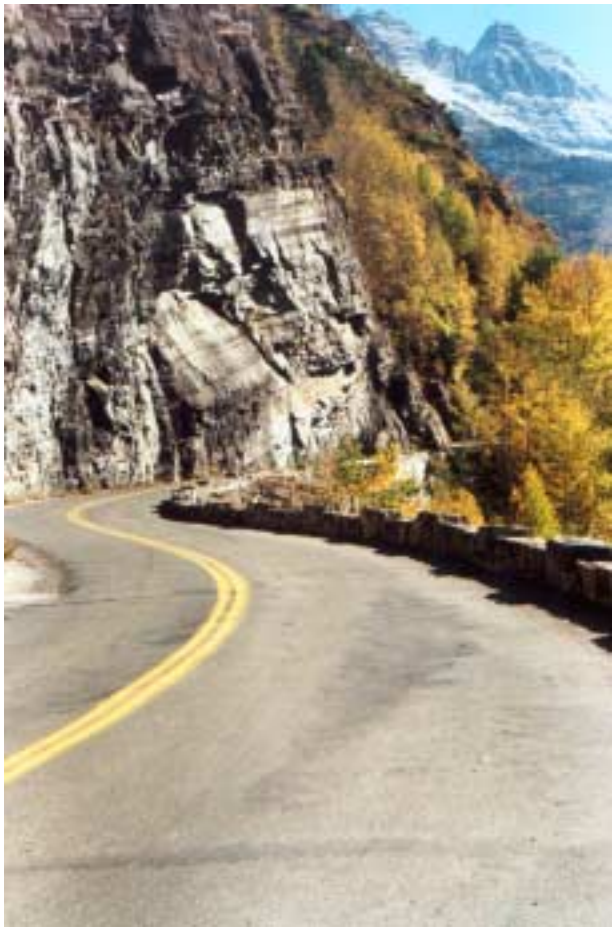
Retaining Walls, Arches, Guardwalls, and Tunnels

Stone retaining walls, primarily between The Loop and Siyeh Bend, are in various states of disrepair (Figure 2). The upper 3 to 8 feet (1 to 2.4 meters) of many of the walls are in distress, with loose or missing stones and crumbling mortar. In some locations, the original retaining walls were replaced with concrete walls and stone-veneer work has not been completed. Stone arch half-bridges have minor to moderate levels of mortar deterioration, except Crystal Point Arch and Triple Arches, which have significant and potentially dangerous deterioration.

Guardwalls include stone masonry guardwalls, removable timber rails, large barrier rocks, and temporary concrete barriers. Many of the historic stone masonry guardwalls are missing, leaning away from the Road, or have been displaced due to poor drainage, lack of adequate foundations, avalanche and snow weight pressures, vegetation and root damage, and in some cases insufficient maintenance practices. In some locations, guardwalls have settled and/or their height has been encroached upon by pavement overlays or patching that reduces their effectiveness as a safety barrier. Temporary concrete barriers (Jersey barriers) are used as an interim safety measure until historically appropriate barriers can be re-established.

Inadequate guardwall height due to settling and successive pavement overlays



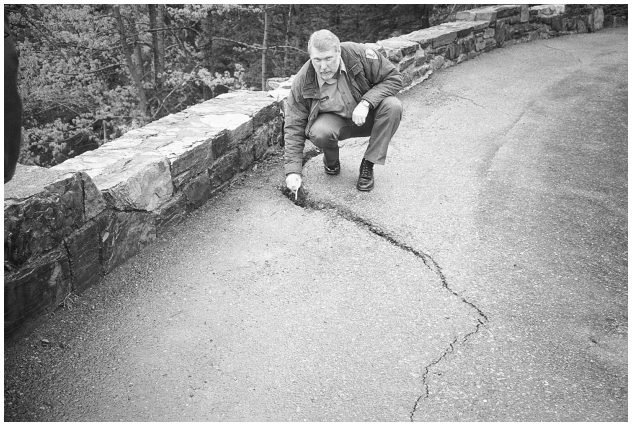
Rockfall hazard area

Damaged guardwall

The inside of the West and East Tunnels are in generally good structural condition. No repairs are needed for the East Tunnel. The north portal of the West Tunnel has experienced water seepage across the stone veneer on the outside of the tunnel, which has eroded the mortar. The rock veneer needs to be removed and reset. In addition, a rockfall hazard is present on the side portals of the West Tunnel. Original blasting of the tunnel has fractured the rock above the tunnel and subsequent drainage and freeze-thaw action frequently loosens the rock. This condition creates a safety concern for visitors to this site.

Roadway Pavement

The original Road was not constructed to handle current traffic levels and vehicle weights. Water seeps into the roadbase, age, and traffic have all contributed to pavement deterioration. Excessive voids have occurred in base course material, with subsequent settling and failure of the roadway and shoulders. Various stages of road distress are present including potholes, cracks, ruts, erosion of shoulders, and sinking and raveling of the pavement's edge. Although many cracks have been filled and damaged areas patched, the underlying conditions that caused roadway damage have not been corrected. In many locations, permanent repair and adequate structural capacity can only be accomplished by rehabilitation of the roadbed and pavement structure.



Pavement cracks

Operation and Maintenance

Reliable estimates on the amount of deferred maintenance associated with the Road are not readily available. The NPS has not had a reliable method to assess the condition of Park assets, although new condition assessment techniques are currently being developed. However, many of the Road's structural features and facilities have not been adequately maintained due to a lack of funding. Because of the extensive and expanding deterioration of the Road, Park staff is unable to keep up with increasingly difficult and expensive maintenance work.

Needs Associated with Safety

The deteriorating condition of the Road and other deficiencies in design of adjacent facilities are a safety concern for motorists, bicyclists, and pedestrians. Primary safety concerns include:

- In several locations, there is no barrier to prevent vehicle entry into roadside drainage inlets.
- Low guardwalls do not provide an adequate barrier for vehicles and pedestrians.
- Missing sections of protective guardwall.
- Poor drainage results in standing water or icing, which creates a hazard for motorists and cyclists.
- Large barrier rocks on the Road shoulder do not provide a continuous smooth transition through constricted areas, which presents a safety hazard for motorists.
- In some locations, deteriorating pavement such as cracks, potholes, and uneven or

rough surfaces creates a safety hazard for motorists and cyclists.

- Unstable slopes above the Road in several steep mountainous areas create a rockfall hazard.
- Pedestrian crossing locations at several pullouts, overlooks, and parking areas are often missing, poorly located, and/or improperly designed.
- Some pulloffs are too small to accommodate the size of vehicles on the Road.
- Pavement on curves at lower elevations is too narrow to accommodate vehicles over 8 feet wide and 21 feet long.
- Attractions often are located on the side of the Road opposite from parking, which requires pedestrians to cross the Road.
- Vegetation encroachment along portions of the Road reduces sight distance and obscures signs.

Needs Associated with Deterioration of Cultural Resources

As previously discussed, many of the engineering features of the Going-to-the-Sun Road have deteriorated and are in need of repair and rehabilitation. Many of these same engineering and structural features are of historic significance and contribute to the designation of the Road as a National Historic Landmark. Segments of historic guardwall and retaining walls no longer exist, have shifted or fallen, have been damaged by rockfall or avalanche, and have been inadequately maintained or repaired. In some Alpine locations, layers of built-up asphalt are obscuring the guardwalls. The use of modern exposed concrete for retaining walls and other modern temporary repairs have seriously affected the historic character of the Road. Historic stonework at culverts and drainages has been damaged and some historic bridges are at risk from sediment deposition and stormflow.

Needs Associated with Damage to Environmental Resources

Damage to natural resources adjacent to the Road has occurred from on-going deterioration of the Road. Inadequate drainage has resulted in erosion of roadside slopes and a loss of soil and vegetation. Improper drainage also contributes to slope instabilities and the potential for landslides, slumping or other significant disturbances. Accelerated erosion also contributes to sedimentation of streams and lakes and impacts to fisheries and aquatic life. Inadequately placed culverts and drainage features under the Road have restricted fish passage. The Road also has served as a vector for weed invasion. Maintaining the historical appearance of a turf shoulder presents special problems due to continued introduction and spread of exotics, accumulation of gravel deposits from road sanding, and the need for occasional mowing to maintain sight distance for safety.

Needs Associated with Deficiencies in Visitor Use Facilities

Over 80 percent of Park visitors travel the Road. The Road provides access to principal points of interest and offers many stunning views. Visitor surveys have indicated that viewing the scenery and wildlife accessed by the Road is an important component of a visit to the Park (Littlejohn 1991; WIS 2001b). The quality of roadside exhibits and interpretive information, parking, and access to trails also are valuable features that add to the quality of the visitor experience. Peak summer traffic frequently causes crowding at pullouts and parking areas along the Road. Visitors are often frustrated by the lack of parking and inability to experience the Park at congested locations. As a result, some visitors attempt to park in undesignated areas causing resource damage and safety concerns.

Some of the existing pullouts and parking areas are not designed to provide safe entry and exit. Overuse at some pullouts has resulted in erosion, vegetation trampling, and hardened and compacted soils from informal social trails and undefined visitor use areas. A lack of interpretive exhibits, orientation sites, and signs often leads to visitor confusion and congestion at popular sites. Insufficient visitor amenities such as toilets or transit stops diminish the visitor experience. Vegetation growth has obscured many of the Road's historic scenic vistas. The deficiencies in Park visitor use facilities along the Road are summarized below and described in more detail in the Going-to-the-Sun Road *Transportation and Visitor Use Study* (WIS 2001c).

Pullouts and Parking

About 170 pullouts and several parking areas are located within the Road corridor including about 15 informal gravel pullouts. Some existing pullouts are poorly designed and cause traffic flow and safety concerns. Other pullouts are located on unstable slopes that are subject to slumping, degradation of the subbase, and poor pavement conditions. Informal gravel pullouts, primarily east of Logan Pass, create safety and maintenance issues. In addition to the structural deficiencies of pullouts, many of them are inadequately designed to meet current visitor needs.

Most of the popular parking areas and pullout locations, including Avalanche Creek, The Loop, Logan Pass, Siyeh Bend, Sunrift Gorge, Wild Goose Island Overlook, and Jackson Glacier Overlook, are frequently congested and parking demand exceeds capacity (Figure 2). Parking spaces are often poorly designed, located too close to the Road, lack designated striping or orientation for motorists. At many of the pullouts, parking areas are located across the Road from the visitor attraction, which results in a safety concern for pedestrians and drivers. Deficiencies at larger pullouts and parking sites along the Road are described below.

Apgar. The Apgar Village area includes a variety of amenities for Park visitors including a visitor center, lodging, stores, access to Lake McDonald, and camping. This area needs additional visitor information services and a formal transit stop. Visitor and pedestrian circulation needs to be improved.

West Side Discovery Center/Transit Center. The Park has plans to construct a Discovery Center near Apgar. This facility would include a visitor center, transit staging, and museum and would serve to educate and inform visitors about the Park and assist them in planning their activities. Associated with this project is a staging area for visitors to park and access transit service. Currently there are no areas on the west side to adequately serve as a staging area for transit vehicles and visitor parking.

Lake McDonald Lodge. Lake McDonald Lodge is a popular overnight and day use area. Currently, there is no designated transit stop, and facilities for the dissemination of information about the Park are inadequate.

Pullout #8/Road Camp. Currently there is a lack of adequate toilet facilities along this section of the Road. The Road Camp pullout provides an opportunity to interpret the original construction of the Road, but there is currently no access to historic remnants or interpretive information.

Avalanche. Avalanche is one of the most congested areas in the Park. It is the focal point for a number of visitor activities including picnicking, camping, over-length vehicle turnaround, restrooms, and a popular trailhead. The current use of campground roads for the oversized vehicle turnaround adds to the congestion at this popular site. This site is currently lacking adequate toilet facilities. The Trail of Cedars boardwalk is in need of repairs and additional interpretive information.

Avalanche

Red Rock Point. At this popular large pullout, visitors access a scenic portion of McDonald Creek and view a significant historic arch and wall. However, there is no formal trail and as a result, numerous social trails have developed that have trampled vegetation, exposed tree roots, and created erosion. The existing parking area is undefined, which results in safety concerns for pedestrians and motorists.

Logan Pit. This site is currently used for maintenance and material storage. Currently, oversized vehicles are prohibited beyond Avalanche. Although Avalanche serves as the oversized vehicle turnaround, it was not designed for this use. In order to help alleviate traffic and safety concerns at Avalanche, increase park access for west side visitors in oversized vehicles, and improve vehicle circulation, Logan Pit is being considered for an oversized vehicle turnaround.

Logan Creek. The existing vault toilet at the Logan Creek pullout is in disrepair and needs replacing. Improvements in vehicle and pedestrian circulation are needed to address safety concerns. In addition, social trails have developed in the area and need to be obliterated and revegetated.

The Loop. The Loop is the only switchback on the Road and provides a popular stop for visitors to enjoy the view or access the lower trailhead to Granite Park Chalet. The limited parking spaces are generally full during peak periods making it difficult or dangerous for many visitors to stop. Pedestrian safety is a significant concern because the trailhead is located across the road from the parking lot. This requires pedestrians to cross the road where sight distance is extremely limited by the tight bend in the road. Vegetation growth has blocked scenic vistas so visitors often walk or stand along the edge of the road to find an opening in the vegetation. Important visitor services not available at this site include toilet facilities and a transit stop.

The Loop

Road Camp. This pullout needs improvements in parking layout to better control vehicle and pedestrian movement. The existing trail needs restoration and scenic views have been obscured by vegetation growth. The numerous social trails need to be obliterated and revegetated. There is no existing interpretation of this significant site.

Big Bend. Located in the Alpine segment of the Road, Big Bend is the only large, flat pullout area where a large number of visitors can stop. This area is subject to avalanches in the winter and requires substantial effort to remove the snow in the spring. Because of the size of the pullout and the substantial sight distance, pedestrian safety is generally adequate. Undefined parking sites on both sides of the road are used by visitors to stop and enjoy the scenery, but this informal parking does not allow for efficient use of available parking space. The lack of a designated trail or path has led to informal social trails and damage to roadside vegetation and erosion. This site lacks a toilet and a transit stop.

Big Bend

Oberlin Bend. Rehabilitation of the existing trail is needed to repair damages. This site also lacks the interpretive exhibits that were planned for the area.

Logan Pass. This is one of the most popular destinations in the Park, but is deficient in several visitor use facilities. In the fall after the water is turned off, there are only portable toilet facilities that consistently overflow on peak visitor days. Additional facilities are needed for materials and interpretive information to improve visitor enjoyment of the site. This site also lacks a designated transit stop.

Lunch Creek. This is the first formal pullout east of Logan Pass. Deficiencies in vehicle circulation and pedestrian movement create a safety concern. Informal social trails have developed, which causes erosion and vegetation damage.

Siyeh Bend. The Siyeh Bend pullout has several scattered paved parking areas on the east side of Logan Pass. This popular pullout provides visitors with several recreation opportunities, including scenic vistas, access to Piegan Pass Trail, a transit stop, and trailhead parking. The lack of defined parking spaces also reduces the efficiency and safety for motorists and pedestrians.

Siyeh Bend

Jackson Glacier Overlook. Improvements in pedestrian and vehicle circulation are needed to address safety concerns. This site lacks a transit stop and informational materials for visitors. Vegetation growth adjacent to the overlook has obstructed views of the glacier.

Grizzly Point. The Grizzly Point pullout needs reconfiguration to improve traffic flow and separate visitors from vehicles. Vegetation clearing also is needed to restore views.

St. Mary Falls Trailhead. The existing parking area is not large enough for vehicles to safely pull in and out of traffic on the Road. This creates a safety hazard for motorists and pedestrians. This site also lacks toilet facilities and a transit stop. Vegetation clearing is needed to restore scenic views.

Sunrift Gorge. Sunrift Gorge is a popular visitor attraction where parking demand exceeds capacity. Undefined parking is located on both sides of the road, but vehicles are often parked in undesirable locations that result in a safety concern. This site provides access to a short trail to view Sunrift Gorge and longer trails to St. Mary Falls and Piegan Pass. The existing trails and steps are in need of maintenance and repairs. Hikers accessing longer trails often occupy much of the parking capacity, which leaves insufficient parking for short-term visitors stopping to see Baring Creek Bridge or Sunrift Gorge.

Baring Creek Bridge at Sunrift Gorge

Sun Point. Sun Point is a large parking area located about 1,000 feet (300 meters) south of the Road near the shore of St. Mary Lake. The site is under-utilized and has opportunities for interpretation and visitor use. Picnic facilities, a toilet, trailheads, and ample parking are available. This site is also used as an oversized vehicle turnaround point for vehicles entering GNP from the east. Oversize vehicles traveling west are not allowed past Sun Point. An improved vault toilet, rehabilitation of existing trails, and other visitor use improvements are needed at this site. Vista clearing also is needed to restore the scenic views that were originally available at this site.

Sun Point

Wild Goose Island Overlook. Wild Goose Island on St. Mary Lake is one of the most photographed sites in GNP and is best seen from this overlook. Existing pullouts provide parking at two sites north of the Road and one site on the same side of the

Wild Goose Island Overlook pullout

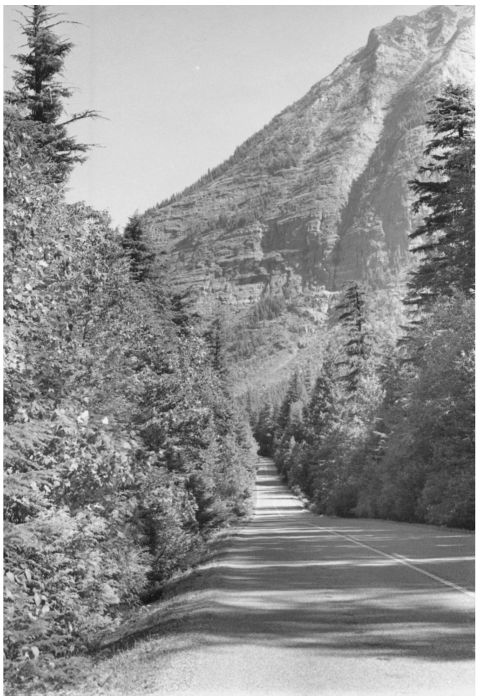
Road as the overlook. Pedestrians using the north side pullouts must cross the road in an area with inadequate sight distance for safe crossing. Undefined parking spaces lead to inefficient use of space and congestion during peak times. The existing viewing area is not designed to accommodate the type of use and number of visitors at the site. In addition, the scenic views once available from this site have been obscured by vegetation growth.

St. Mary Entrance and Visitor Center. The existing entrance station needs to be rehabilitated because it does not meet accessibility and building codes and standards. The visitor center is outdated and requires upgrading to improve the quality of exhibits, audiovisual resources, and other visitor use facilities. In addition, the existing parking area and access requires reconfiguration to accommodate traffic needs, a transit stop, and parking.

Scenic Vistas

The Road provides exceptional scenic views of the landscape, which is the primary reason that most visitors drive the Road. Since the original Road construction, vegetation growth adjacent to the Road shoulder has blocked scenic vistas, diminishing the quality of the visitor experience the Road was intended to provide. As seen in Figure 3, vegetation growth along the Road has increased substantially since original construction because of the additional light and moisture available along the roadway margin. Scenic viewpoints such as The Loop, Jackson Glacier Overlook, Sun Point, along Lake McDonald and elsewhere no longer provide the scenic vistas originally intended along the Road.

Figure 3. Roadside Vegetation in 1939 (left); Roadside Vegetation Near the Same Location in 1987 (right).

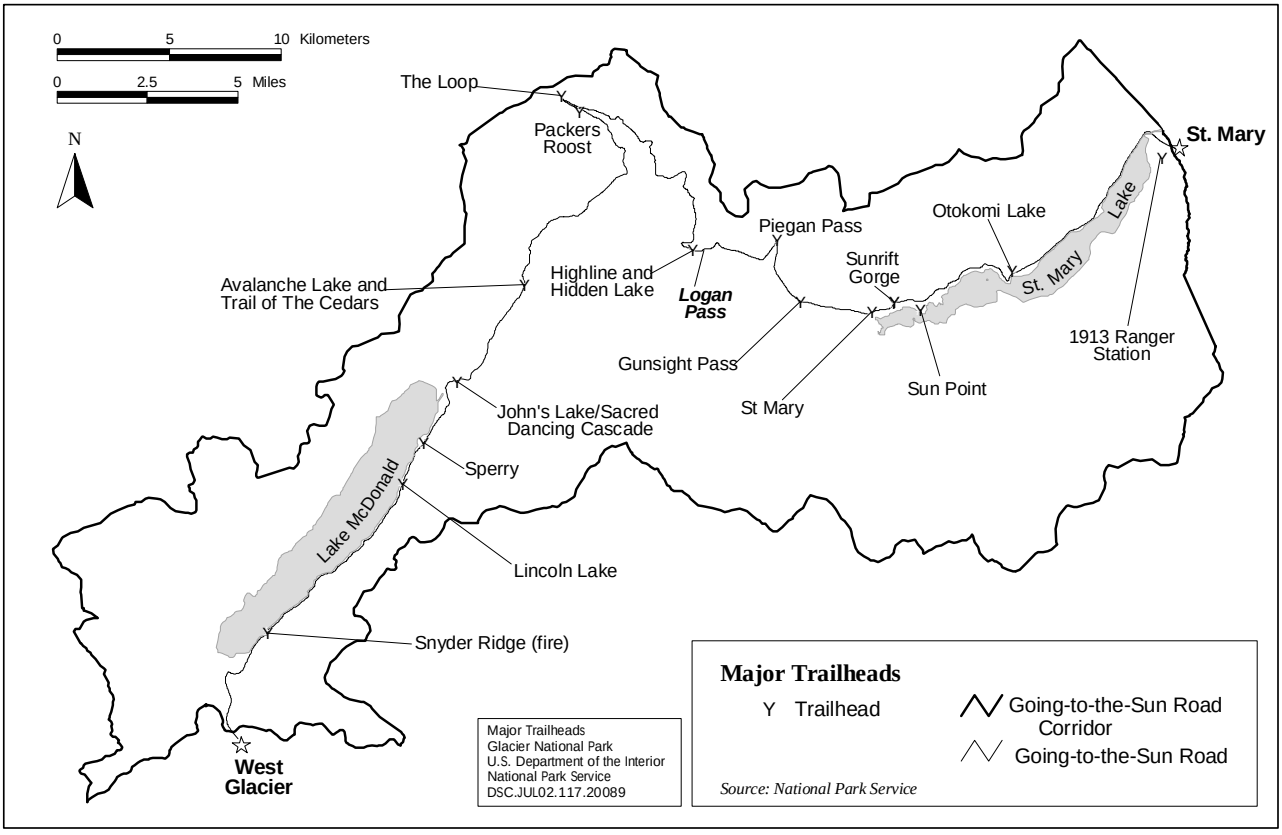


Trails

Several of the pullouts and parking areas located along the Road provide trailhead access (Figure 4). Some trailheads lead to formally designated trails. In other locations, informal trails have been created by visitor travel to scenic overlooks or points of interest adjacent to the Road. The informal social trails created by visitors frequently result in multiple trails and resource damage to vegetation and soils.

Social trail at Red Rock Point

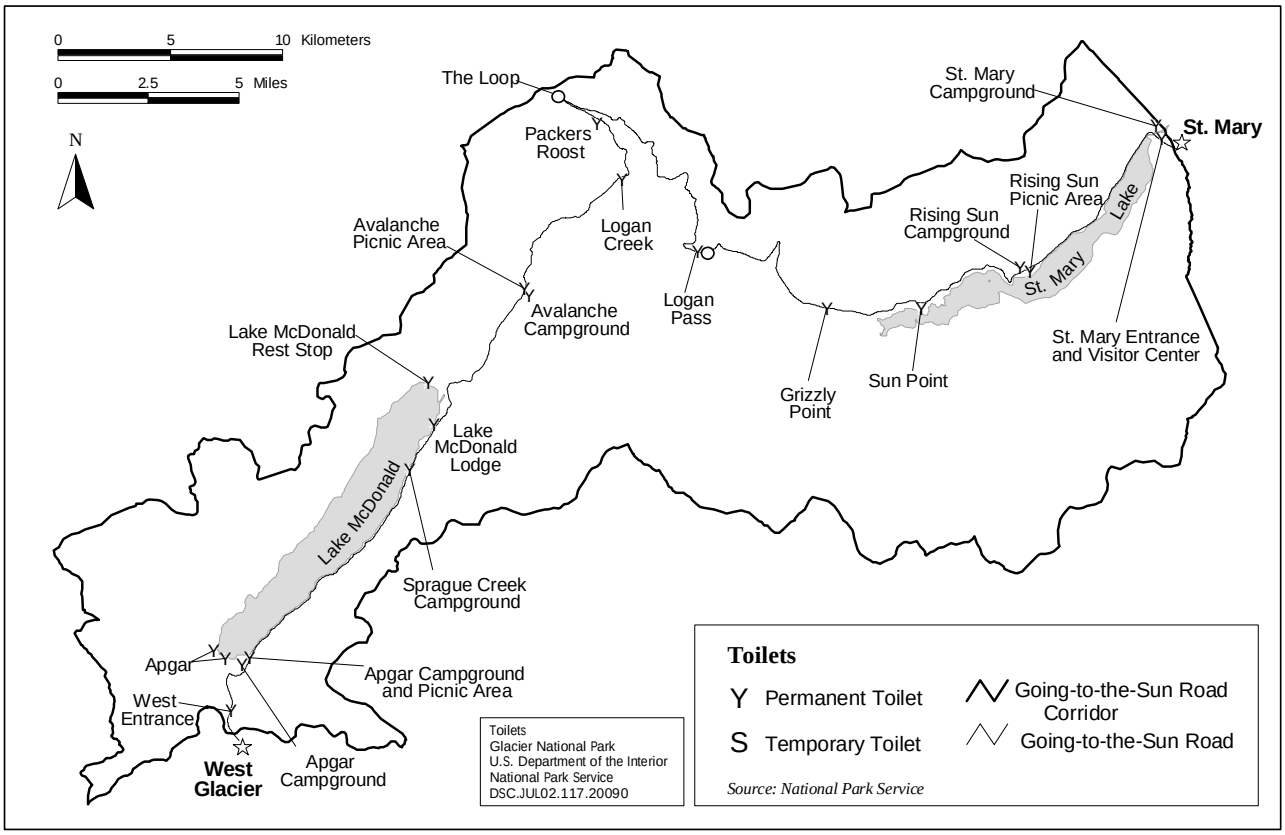
Figure 4. Existing Trailheads.



Toilets

There are nine toilet locations along the Road not including those at Apgar Village, the St. Mary Visitor Center, and campgrounds and lodges (Figure 5). In addition, temporary portable toilets are present at The Loop and Logan Pass. The existing portable, flush, and vault toilets are inadequate during peak visitation. Not all toilet facilities provide American Disability Act (ADA) accessibility. The lack of toilets leads to traffic congestion and parking problems at sites that have toilets. An insufficient number of toilets leads to resource impacts including water quality concerns, wildlife habituation to human urine, and possible visitor/wildlife conflicts.

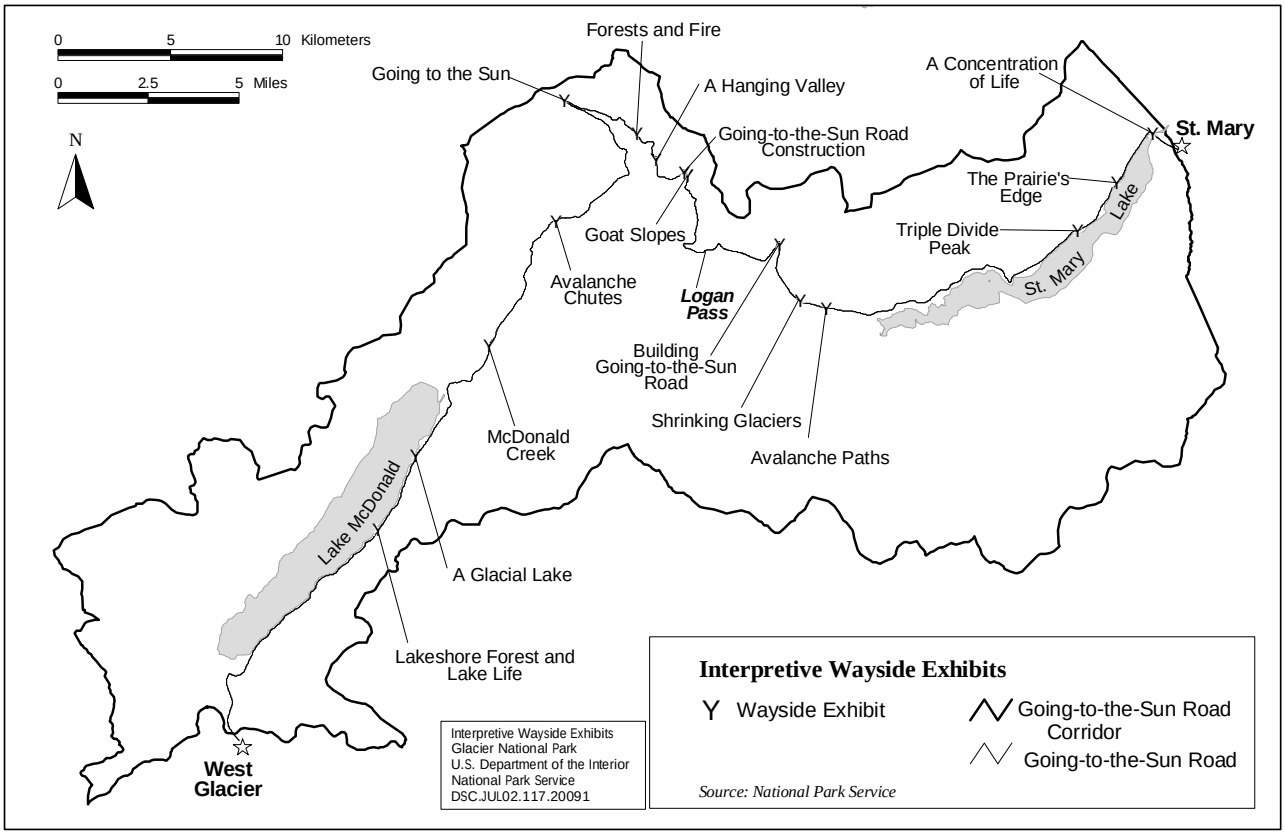
Figure 5. Existing Toilets.



Interpretation and Orientation

Currently there are several exhibits and interpretive stations located along the Road at pullouts, scenic overlooks, and trailheads (Figure 6). The signs, displays, and information provided at these sites assist visitors in experiencing the Park. However, additional wayside exhibits, signs, visitor education, and interpretive information along the Road to assist visitors and direct traffic are needed to increase the quality of the visitor experience. Traffic safety studies have indicated the need for allowing motorists a place to pull off the Road and make travel decisions (Robert Peccia and Associates 1997). Proper orientation of the visitor to the attractions and geographic layout of the Park is critical to providing a quality visitor experience.

Figure 6. Existing Interpretive Sites.



SCOPING AND PUBLIC INVOLVEMENT

In February 2000, Interior Secretary Bruce Babbitt appointed 17 members to serve on the CAC for the rehabilitation of the Going-to-the-Sun Road. The CAC was composed of a diverse group of local business leaders from the east and west sides of the Park; state and local government officials; representatives from the Blackfeet Tribe and the Confederated Salish and Kootenai Tribes; tourism representatives from Montana and Canada; local and national experts on the environment, historic preservation, engineering, and economics; and a representative-at-large. Suzanne Lewis, former GNP Superintendent, was the Designated Federal Official.

The CAC charter stated that:

> *The purpose of the Committee is to advise the National Park Service in the development of alternatives for rehabilitation of the Going-to-the-Sun Road in Glacier National Park, focusing on road condition and rehabilitation strategies, including scheduling, costs and measures to mitigate impacts on visitors and local economies. These alternatives will then be analyzed in an environmental document that will provide the basis for the agency decision.*
>
> The CAC met four times:
>
> - February 29-March 2, 2000, Kalispell, Montana
> - September 25-26, 2000, West Glacier, Montana
> - September 19-21, 2001, East Glacier, Montana
> - November 15, 2001, Whitefish, Montana

All CAC meetings were open to the public, with time allowed for public comment. Official transcripts from each of the CAC meetings were recorded (Goodman Reporting 2000, 2001). After numerous discussions and many hours of review of studies by these dedicated individuals, the CAC's final recommendations to the Park were completed in November 2001 (NPS 2001a).

GNP began seeking public input, or scoping, on the proposed project with a notice in the *Federal Register* (June 5, 2000) and a newsletter mailed to the public and placed on the GNP website. The NPS held a series of open houses in December of 2000 to solicit input and comment from the public on the proposed rehabilitation of the Road and preparation of an EIS. Open houses were held on December 4 in Kalispell, Montana; December 5 in Missoula, Montana; December 6 in Great Falls, Montana; and December 7 in Browning, Montana and Lethbridge, Alberta, Canada. Public scoping comments were accepted by mail and at the GNP website until December 29, 2000. In addition, a number of public comments were received and issues identified during the course of the CAC meetings and public comment and public review of the *Engineering Study*, *Socioeconomic Study*, and *Transportation and Visitor Use Study*.

The Park also requested scoping comments from federal and state agencies that may have an interest in the proposed project. Input was solicited from the U.S. Fish and Wildlife Service, Environmental Protection Agency, Montana State Historic Preservation Office, Montana Department of Fish, Wildlife, and Parks, Montana Department of Environmental Quality, and Montana Department of Natural Resources and Conservation.

Issues identified in the scoping process from the public, CAC, and agency comments are described in the following section.

ISSUES CONSIDERED IN THIS EIS

The regulations governing EIS preparation require that lead agencies determine "the significant issues to be analyzed in depth in the environmental impact statement" and to "identify and eliminate from detailed study the issues that are not significant" (40 CFR 1501.7). The overall purpose of scoping is to focus the environmental analysis on those issues that are relevant to the alternatives and decision to be made.

Issues for consideration in this EIS were identified over a period of almost 2 years from public, CAC, and agency input. An interdisciplinary team that included design engineers, transportation planners, natural and cultural resource specialists, economists, and landscape architects from the NPS, FHWA, and consultants conducted research, site surveys, evaluations, public surveys, engineering assessments, socioeconomic analyses, and prepared reports on the rehabilitation of the Road. Of particular importance was the role of the CAC. The CAC met over a period of 23 months, reviewed numerous studies, listened to public testimony and regional experts, and discussed all facets of the Road rehabilitation.

Below is a summary of the significant issues identified for this project. The section *Impact Topics* (p. 29) provides a discussion of the topics that are considered in this EIS and those that were dismissed from further consideration.

Natural Resource Issues

Geology and Soils

Geologic concerns associated with Road rehabilitation include the rock scaling activities that are needed in the steep portions of the road, primarily between The Loop and Golden Stairs Point (Figure 2). Unstable rock cuts from natural weathering and freeze/thaw action have created a safety hazard. While removal of loose rock material may be necessary in some locations, the steep rock cuts adjacent to the Road are part of the historic scenic character of the Road. Substantial rock removal in rockfall hazard areas could potentially change the visual character of the Road. In addition, removal of possible rockfall hazards might actually trigger rockfall, and cannot provide 100 percent safety or assurance that natural erosion and rockfall will not continue to occur. The scaling of rockfall hazard areas has implications for impacts to vegetation, wildlife, geologic features, scenic quality, historic character, and safety.

Although proposed drainage improvements and stabilization of eroding or unstable slopes should help to protect soil and geologic resources in the long term, there is concern that rehabilitation activities may result in temporary short-term disturbance to geologic and soil resources including erosion, soil compaction, and loss of topsoil.

Water Resources, Floodplains, and Water Quality

The Road parallels high quality water resources including Lake McDonald, McDonald Creek, and St. Mary Lake. In addition, the Road crosses a number of other smaller tributaries to these streams and lakes. Waters in GNP are classified A-1 by the Montana Water Quality Act, which denotes high quality water. Water quality may be affected by ground disturbing activities in close proximity to watercourses. An additional issue of concern is the potential impact to the Road near Divide Creek from periodic flooding.

Vegetation

The Road bisects a variety of natural vegetation communities including high elevation subalpine and alpine habitat. Road rehabilitation, pullout improvements, changes in parking, and other land-disturbing activities could impact native plant communities. Additionally, vegetation has infiltrated stone masonry structures and the Road prism leading to degradation of historic structures. Material from mud slides, avalanches, and general maintenance has been placed on the backside of guardwalls and now supports vegetation that needs to be removed. Another concern is the revegetation of Road sideslopes and areas of disturbance following construction work. As described in *Visual Resources* below, vista clearing and roadside vegetation clearing would require the removal of trees and shrubs adjacent to the Road at select locations. While this action would improve scenic vistas, there is concern over the disturbance to native vegetation, and natural processes, including succession of natural plant communities.

Wetlands

The majority of the Road is located in upland locations, although wetlands border the Road in a few low-lying areas and next to streams. Land disturbance associated with Road rehabilitation could directly or indirectly affect sensitive wetland and riparian areas.

Wildlife and Aquatic Resources

A diversity of habitats along the Road provides for a variety of aquatic and terrestrial wildlife species. Although individuals of some wildlife species are generally acclimated to traffic and noise along the Road, rehabilitation work would introduce additional noise and human activity for extended periods. Some animals would adapt in time, perhaps becoming habituated roadside or "nuisance" wildlife, and some may be displaced. Early and late season construction, as well as night construction activities, could affect wildlife behavior, foraging, and travel near the Road. There is concern that rehabilitation work may temporarily result in increased displacement, fragmentation, and mortality risk, although mitigation efforts may help to reduce some of those impacts. Ground-disturbing activities that contribute to sedimentation in streams and lakes could affect aquatic habitat and species.

Threatened and Endangered Species and Species of Concern

GNP provides habitat for several federally listed species including gray wolf, grizzly bear, bald eagle, Canada lynx, and bull trout. In addition, there are state-listed rare wildlife and plant species in the Park, many with suitable habitat within the Road corridor. Rehabilitation activities could displace wildlife species of concern near the Road or possibly directly impact rare plants.

Air Quality

Potential impacts to air quality and visibility from dust and vehicle emissions during construction are a concern. In addition, the possible use of an asphalt batch plant near the Park could affect air quality and visibility.

Visual Resources

Because of the high quality of scenic resources provided by both natural and historic features along the Road, rehabilitation work could reduce scenic quality and values. Visual concerns include maintaining the character of the Road and preserving the adjacent natural setting. Modifications need to

be done in a manner sensitive to these resources. Maintaining the scenic quality of the Road includes preserving the historic character, retaining the historic setting, as well as perpetuating the rustic character of materials and design. Maintenance and rehabilitation of the historic structures and stonework is a scenic and cultural resource concern and is described more under *Cultural Resource Issues* below.

Other issues of concern include rock scaling that may change the character of the views adjacent to the Road and land disturbing activities that affect vegetation and natural areas.

Scenic vista pullout

Natural Soundscape and Lightscape

The substantial rehabilitation effort needed to repair the Road would introduce additional noise from construction equipment and traffic. In addition, night work would require artificial lighting. Construction activities could disturb the natural sounds and night sky and visitor enjoyment of these resources during rehabilitation.

Wilderness and Wild and Scenic Rivers

Although no rehabilitation work would be conducted within potential wilderness areas, the noise and disturbance could extend into proposed wilderness lands.

The Going-to-the-Sun Road begins on the west side of the Park at the Middle Fork of the Flathead River, which is designated a Wild and Scenic river. Although direct effects to the Flathead River are not expected, the portion of the Road west of the Continental Divide is located within the Middle Fork watershed.

Cultural Resource Issues

The Road provides a distinctive and exceptional example of landscape engineering that blends civil engineering with landscape architecture. The designation of the Road as a National Historic Landmark and a National Historic Engineering Landmark is due in part to the significance of the numerous historic stonework features, including retaining walls, guardwalls, arches, bridges, and other structures. The 1997 designation of the Road as a National Historic Landmark identified five categories of contributing resources — spatial orientation, circulation, topography, vegetation, and structures. The deterioration of historic features from weathering, avalanches, wear and tear, and incomplete or inadequate repair work has reduced the historic appearance of some portions of the Road. Left unchecked, the historic features that contribute to the Road's National Historic Landmark designation would continue to deteriorate.

Rehabilitation of the Road requires consideration of how to best preserve, protect, and rehabilitate the historic features and cultural landscape of the Road. At issue with rehabilitation of the Road are the appropriate repair and maintenance actions that are necessary to balance correction of structural deficiencies with the preservation and rehabilitation of historic features and cultural landscape. In some locations, historic structures such as guardwalls have

totally failed and the historic material from which the wall was constructed is lost. In these and other locations, modern masonry walls have been constructed that detract from the integrity and significance of the Road's historic design. At other locations, modern changes have diminished the integrity of features, but the overall historic appearance is retained. Modern structural material may need to be used to meet safety requirements, with a façade of native stone to provide a historic appearance. In some locations, rehabilitation of existing historic features without the introduction of modern material is possible. There is concern that activities associated with site improvements, such as new pullouts, trails, and parking, could affect archaeological sites and the visual character of the Road.

Visitor Use and Experience Issues

The rehabilitation work for the Road would need to be conducted during the spring, summer, and fall, which are also the times that most visitors experience the Road. Construction activity during the winter and early spring is not possible on high elevation portions of the Road because of the high snowfall and avalanche hazard. A primary issue of concern is how the quality of the visitor use and experience would be affected by Road rehabilitation work. Road rehabilitation could inconvenience visitors, limit their ability to drive the Road, and restrict access to trailheads, scenic overlooks, Logan Pass, and other Park features.

There are also concerns with the existing level of visitor service and safety issues along the Road corridor. Some of the visitor use areas along the Road currently have reached or exceeded their capacity. Parking areas are often at capacity during peak use periods. An issue of concern is how to better distribute visitors along the Road and reduce congestion without major infrastructure improvements in parking and pullout capacity. Safety issues include poorly located or designed parking and pullouts that create a hazard for pedestrians and motorists. Another issue is resource damage caused by visitors from informal social trails and off-shoulder parking.

Park Operation Issues

Proposed Road rehabilitation may result in changes in Park staffing requirements. The extent of this impact is an issue that should be addressed.

Local and Regional Economic Issues

Related to the potential impacts to visitor use are the possible consequences on the local and regional economies from rehabilitation of the Road. Many businesses in northwest Montana and southwest Alberta rely on summer tourism for a large portion of their annual income. A significant issue of concern is how Road rehabilitation work would affect Park visitation and the businesses that rely on tourism. Also of concern are measures that could be used by the Park and other private and government entities to minimize adverse effects during the construction period. Construction-related spending and employment would help to offset potential reductions in tourism, but the extent of the benefit to the local and regional economies is an issue.

Environmental Justice Issues

Available economic data indicate low-income populations including the Blackfeet and Flathead Reservations are present in Glacier and Lake counties, Montana. Of issue is whether rehabilitation of the Road would disproportionately affect low-income populations.

IMPACT TOPICS

The impacts in this EIS are discussed in proportion to their significance. Topics with minor impacts are only briefly discussed; topics with greater impacts are discussed in detail. Impacts considered in this EIS are listed below and those that were dismissed from further consideration follow.

Impact Topics Considered

Impact topics were selected based on the issues identified above and the need to evaluate in detail the potential effects to resources of concern. Impact topics that were selected for detailed analysis include visitor use and experience; local and regional economies; archaeological, historic, ethnographic, and cultural landscapes; topography, geology, and soils; water resources, floodplains, and water quality; vegetation; wetlands; wildlife and aquatic resources; threatened and endangered species and species of concern; air quality; visual resources; natural soundscape and lightscape; and wilderness and wild and scenic rivers. Background information on these topics is discussed in Chapter 3, *Affected Environment*, and the potential impacts to these resources are discussed in Chapter 4, *Environmental Consequences*.

Impact Topics Dismissed from Further Consideration

Two impact topics were dismissed from further consideration in the EIS because there would be no or negligible impacts. Impact topics that were dismissed are briefly discussed below.

Prime Farmland

No prime or unique farmland is present in GNP. There would be no impact on this resource in any of the alternatives.

Hazardous Material

The project area is located entirely within GNP, although potential locations outside of the Park could be used for staging or an asphalt batch plant. No known hazardous materials or contaminated sites are present within areas of potential disturbance along the Road. Petroleum products needed during construction, such as fuel, oil, and hydraulic fluid, are not classified as hazardous material.

RELATIONSHIP TO OTHER PLANNING PROJECTS

General Management Plan

The GMP for the Park commits the NPS to rehabilitate the Park's historic facilities, including the Road. The Road corridor was identified in the GMP as a separate geographic unit encompassing the Road and associated management zones (Figure 2). Four management zones are included within this geographic area. These zones each define a set of desired resource conditions, visitor experiences, types of management activities, and development.

The visitor service zone includes the Road and developed facilities adjacent to the Road including campgrounds, interpretive areas, lodges, commercial services in Apgar, Lake McDonald and St. Mary, administrative facilities, and other visitor amenities. This zone is managed to provide the traditional recreational opportunities for which the Road was designed. The opportunity for visitors to drive and enjoy the Road and adjacent resources is an

important visitor experience. All of the proposed actions associated with Road rehabilitation occur within the visitor service zone. The day use management zone includes popular hiking trails such as the Highline Trail, and trails at Avalanche and Hidden Lake. The day use zone is managed to serve a large number of visitors. The backcountry zone is managed to maintain natural processes, with limited development for hiking and backcountry camping. The rustic management zone includes areas such as the Apgar Lookout Road and Packer's Roost. Management in the rustic zone is limited to unpaved roads, trailheads and parking, sanitation, and administrative facilities.

As broadly defined in the GMP, the Road corridor would be managed to provide all visitors with an opportunity to experience the scenic majesty and historic character of the Park through a wide range of visitor activities, services, and facilities, while the integrity of both cultural and natural resources are preserved and emphasized. The GMP identified several management goals to provide direction for the Road corridor:

- Rehabilitate the Road
- Preserve the Road's historic character and significance
- Complete the necessary repairs before the road fails
- Minimize impact on natural resources, visitors, and local economies
- Minimize the cost of Road rehabilitation
- Develop a comprehensive visitor use plan for the Road
- Provide an efficient and convenient public transportation system
- Retain tour and transportation services, including the red buses
- Continue to restrict bicycles during peak use
- Continue restrictions on vehicle length and width

The GMP determined that rehabilitation of the Road is needed to preserve its historic character and significance. Additionally, the GMP provides the conceptual framework and management direction for rehabilitation and visitor use on the Road. This EIS covers the site-specific actions for implementation of proposed improvements to the Road in accordance with the goals of the GMP.

The GMP also addressed construction of the West Side Discovery Center near Apgar. The Discovery Center will serve as a visitor center and museum and will be located north of the Going-to-the-Sun and Camas Roads' T-intersection. Funding for the Discovery Center is included in the budget for the proposed Going-to-the-Sun Road Rehabilitation Plan. The Discovery Center is one of the mitigation measures planned to attract visitors and reduce potential impacts to Park visitation during Road rehabilitation. A transit staging area and parking lot is included in the Road Rehabilitation Plan at the site of the Discovery Center to accommodate expanded transit service during roadwork.

The Divide Creek flood hazard concern was addressed in the GMP. The preferred alternative selected in the GMP includes relocating Park employee housing and administrative and maintenance facilities. The Going-to-the-Sun Road *Rehabilitation Plan* only addresses the Road improvements associated with Divide Creek and protecting the Road from periodic flooding.

Commercial Services Plan/Environmental Impact Statement

In accordance with the direction provided by the GMP, the Park is preparing a *Commercial Services Plan/Environmental Impact Statement* to provide guidance for managing commercial services in GNP. The *Commercial Services Plan* (CSP) is addressing

visitor use facilities throughout the Park including areas adjacent to the Road such as Apgar, Lake McDonald Lodge, and Rising Sun, whereas the proposed improvements to visitor use facilities in this Going-to-the-Sun Road rehabilitation project only include those visitor facilities associated with transportation. The goals of the *Commercial Services Plan/Environmental Impact Statement* are to:

- Determine the overall mix of commercial services
- Establish a framework for future decisions
- Establish the character and level of service by Park area based on need, expectations, economic feasibility, and resource implications
- Provide a clear vision and implementation strategy for rehabilitating the historic hotels, and continuing a wide variety of visitor experiences
- Provide the specific information necessary for issuance of concession contracts including those that allow rehabilitation efforts

Roadside Maintenance Guideline

Roadside Maintenance Guidelines for Glacier National Park were developed in 1993 to provide direction on the treatment of the roadway corridor along the Going-to-the-Sun Road and other Park roads (NPS 1993b). The policy established by the guidelines is to: protect the structure and integrity of the Road; avoid or minimize damage to natural resources; maintain or improve roadside safety; protect cultural resources; and recognize the importance of the visitor experience. Roadside maintenance activities include: upkeep and repair of the Road's structural features; cleaning drainage structures; utility repairs; mowing and brushing, seeding, hazardous tree removal, and weed control. The guardwalls will be kept clean of soil and vegetation, including materials from slides and general maintenance activities. Another important aspect is maintenance of the vistas and views that are critical to the character of the Road, roadway views of features and landscape, and the visitor experience. Compliance was completed for vegetation management along all Park roads in 1999, covering the "maintenance of vistas and sight distance clearings within the road prism". The categorical exclusion was issued for this work on May 19, 1999.

West Entrance Plan

In 2000, NPS completed an Environmental Assessment for improvements to the West Entrance of GNP (NPS 1999a). This plan included rehabilitation of the historic entrance station, roadway improvements, a new employee toilet, and an orientation station for visitors. Completion of roadwork and the orientation station are in progress, but funding for rehabilitation of the West Entrance Station and employee toilet would come through the proposed Going-to-the-Sun Road *Rehabilitation Plan*.

Transportation Plan/EA

A *Transportation Plan* was developed by NPS for the Park in 1990 to provide a management plan for safe and enjoyable travel on Park roads, including the Going-to-the-Sun Road (NPS 1990). The *Transportation Plan* identified the need to correct road deficiencies, reduce safety hazards, solve traffic and transportation problems, and to develop public transit options. Maintaining the historic character of the Road was recognized as a high priority, thus preservation of the existing alignment and restoration of historic stone masonry would guide

improvements to the Road. The plan also addressed parking and turnouts along the Road and made recommendations regarding treatments. Proposed rehabilitation of the Road in this Draft EIS would correct many of the deficiencies identified in the *Transportation Plan* and implement measures to improve safety and visitor access. The Finding of No Significant Impact for the *Transportation Plan* was signed on June 20, 1990.

Resource Management Plan

The *Resource Management Plan* (NPS 1993a) was developed by GNP to serve as a guide for the management of natural and cultural resources. The management objective for natural resources is to "conserve and protect the integrity of Glacier's naturally functioning ecosystem, recognizing man as a part of this system" and "to conduct and encourage scientific research that contributes to the understanding and management of ecological and cultural systems." The management objective for cultural resources is "to identify, interpret, and protect Glacier's significant cultural resources and to manage them as vital components of the Park's resource spectrum." Rehabilitation of the Going-to-the-Sun Road and visitor use improvements are in accordance with the goals, objectives, and direction provided by the *Resource Management Plan*.

Exotic Vegetation Management Plan

The *Exotic Vegetation Management Plan* (NPS 1991) provides direction for preserving biological diversity of native flora by containing and/or controlling undesirable exotic plant species. Plan objectives include inventory, research, education on exotic species, as well as control and prevention of exotic plant establishment in the Park. Ground disturbing activities associated with proposed roadway rehabilitation and improvements would be in accordance with the Integrated Pest Management (IPM) procedures for controlling the introduction or spread of exotic species outlined in the *Exotic Vegetation Management Plan*.

DECISION PROCESS

This Draft EIS has been prepared in accordance with the NEPA of 1969 and amendments, Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the NEPA (40 CFR 1500-1508), and National Park Service Guidelines (DO-12). The NPS is the project proponent and lead agency under NEPA. The Draft EIS will be released to the public for a 60-day comment period. Following receipt of comments, the NPS will respond to substantive comments and consider changes to the alternatives and impact analysis in the Final EIS. A Final EIS will be completed about six months following the release of the Draft EIS, depending on the number of comments and changes to the proposed project. Following public and agency comment on the Final EIS, the NPS will issue a ROD that describes the decision on the proposed project.